



AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): An apparatus for controlling vehicle brake using brain waves, comprising:

a brain wave detector for detecting a central beta rhythm of 18 - 26 Hz obtained from one of a central region, a parietal region and a frontal region of a scalp of a driver's brain waves appearing before the driver's movement to step on a brake pedal after determining driving conditions;

a brain wave amplifier for amplifying the brain waves detected by the brain wave detector;

an A/D converter for converting the brain waves amplified by the brain wave amplifier into a digital data; and

a controller for sensing the driver's movement for braking by analyzing the brain waves converted into the digital data in the A/D converter and then generating a command for braking the vehicle,

wherein the central beta rhythm of 18 - 26 Hz is a range not contaminated due to an eye blink.

Claim 2 (Original): The apparatus as claimed in claim 1, wherein the brain wave detector has a headphone-type shape in which an electrode is attached to a central region of the driver's scalp.

Claim 3 (Original) The apparatus as claimed in claim 2, wherein the electrode is one in number and is positioned in Cz, Pz or Fz of International 10-20 System of Electrode Placement.

Claim 4 (Currently Amended): A method for controlling vehicle brake using brain waves, comprising:

detecting a central beta rhythm of 18 - 26 Hz obtained from one of a central region, a parietal region, and a frontal region of a scalp of a driver's brain waves

appearing before the driver's movement to step on a brake pedal after determining driving conditions;

amplifying the central beta rhythm;

A/D converting the amplified central beta rhythm from analog data into a digital data; and

controlling a vehicle brake, the controlling including:

sensing the driver's movement for braking by comparing the central beta rhythm that was converted into the digital data in the A/D converting with a reference brain wave, and

generating a command for braking the vehicle,

wherein the central beta rhythm of 18 – 26 Hz is a range not contaminated due to an eye blink.

Claim 5 (Previously Presented): The method as claimed in claim 4, wherein comparing includes determining that there exists movement for braking, if a relative power to the reference brain waves of the detected central beta rhythm is lower than a predetermined threshold, and then generating the vehicle braking command.

Claim 6 (Previously Presented): The method as claimed in claim 4, wherein the controlling includes operating the vehicle brake, by determining whether or not there is movement for braking by using an artificial neural network with the relative power at each frequency of the detected central beta rhythm as an input.

Claim 7 (New): The method of claim 4, wherein the central beta rhythm of 18 – 26 Hz is a range not contaminated due to respiration.

Claim 8 (New): The apparatus of claim 1, wherein the central beta rhythm of 18 – 26 Hz is a range not contaminated due to respiration.

Claim 9 (New): An apparatus for controlling vehicle brake using brain waves, comprising:

a brain wave detector for detecting a central beta rhythm obtained from one of a central region, a parietal region and a frontal region of a scalp of a driver's brain waves appearing before the driver's movement to step on a brake pedal after determining driving conditions;

a brain wave amplifier for amplifying the brain waves detected by the brain wave detector;

an A/D converter for converting the brain waves amplified by the brain wave amplifier into a digital data; and

a controller for sensing the driver's movement for braking by analyzing the brain waves converted into the digital data in the A/D converter and then generating a command for braking the vehicle,

wherein the controlling includes operating the vehicle brake, by determining whether or not there is movement for braking by using an artificial neural network with the relative power at each frequency of the detected central beta rhythm as an input.

Claim 10 (New): The method of claim 4, wherein the central beta rhythm is in a range of 18 – 26 Hz.

Claim 11 (New): The method of claim 10, wherein the central beta rhythm range of 18 – 26 Hz is a range not contaminated due to eye blink.

Claim 12 (New): The method of claim 10, wherein the central beta rhythm range of 18 – 26 Hz is a range not contaminated due to respiration.